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AUTHOR Sockut, Joanne; Stumpe, Stephanie
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ABSTRACT

One of five McDonald's Action Packs, these instructional materials integrate elementary school-level nutrition education into other disciplines--biology, sociology, physiology, mathematics, and art. Contents include four units consisting of twelve activities. Unit 1, Why You Need Food, is a self-examination of what is needed for growth, health, and energy. A study of the basic four food groups and simple menu planning is contained in unit 2, Your Daily Food Guide. Unit 3, What Food Is Made of: Nutrients, discusses protein, energy foods (fats and carbohydrates), water, vitamins A and C, calcium, and iron. The final unit, Eating Too Much, is a presentation of facts concerning overweight and admonitions to avoid eating too much. Each unit includes some or all of the following: an introduction, brief descriptions of the various unit sections, activities, suggested activities, and instructions for using activity sheets. Student activity sheets suitable for reproduction are provided. (YLB)

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Preface

One of the primary concerns of nutrition is finding ways to influence food behavior that will produce lasting effects. The ideal is to introduce new foods and nutrition concepts at an early age when new tastes and ideas are more readily accepted until they become integrated into lifetime food patterns.

McDonald's ® Corporation in cooperation with the Community Nutrition Service of the Cleveland Health Museum and Education Center has produced McDonald's Nutrition Action Pack which effectively and accurately integrates practical nutrition concepts into school curricula.

Designed for use by teachers in primary grades, the Nutrition Action Pack skillfully integrates nutrition education into other disciplines . . . biology, sociology, physiology, mathematics, and art. Activities designed for the children progress beyond learning new words to application of the terms into experience.

The flow of ideas through the units is unique and interesting. Beginning with a self-examination of what is needed for growth, health, and energy, the student progresses to a study of the Basic Four Food Groups and simple menu planning. The next idea is of the nutrient content of foods. Nutrients studied include protein, energy foods (fats and carbohydrates), water, vitamins A and C, calcium and iron. The final unit is a presentation of facts concerning overweight and admonitions to avoid eating too much.

Many years ago Harvard's Department of Nutrition had a research project along similar lines — attempting to teach nutrition through the elementary and secondary schools, integrating it with "reading, writing, and arithmetic," and taught by "school teachers." This culminated in two booklets: "Activities in Nutrition Education for Kindergarten through Sixth Grade" and "Activities in Nutrition Education — A Unit for High School Classes." Both booklets have long been out of print.

We feel the Nutrition Action Pack is a distinct improvement over our earlier works, and are confident it will be well received and be useful. It emphasizes good nutrition, formation of good eating habits (rather than reforming the eating habits of adults), sets an excellent basis for later in-depth learning in a scientific setting, and provides excellent activities as a basis for learning. All of this is in a relevant, up-to-date, interesting format.

The Community Nutrition Service of the Cleveland Health Museum and Education Center and McDonald's ® Corporation are to be congratulated for a job well done. The Nutrition Action Pack should be widely circulated and used in elementary schools. It should also set a precedent for curriculum development at other grade levels.

Fredrick J. Stare, M.D.
Professor of Nutrition
Chairman, Department of Nutrition
Harvard University

Introduction

Dear Colleague,

Nutrition is a science that is growing rapidly. In the early 1900's there was only a very small body of nutrition knowledge with a much greater portion as yet to be discovered. In the intervening years, our knowledge of nutrition has increased by leaps and bounds. Although there are many questions still to be answered, we need to make sure that people get the answers we do have.

In the past, nutrition professionals have expended most of their energies in trying to reform people's habits instead of forming them. It has become increasingly more evident that in order to improve the eating patterns of our population, we must TEACH the children instead of trying to CHANGE the adults. The McDonald's® Nutrition Action Pack™ has been developed to do just that — to give the children of today a sound foundation upon which to make rational food choices based on nutritional guidelines.

The topics in the McDonald's Nutrition Action Pack have been developed so that you, as a busy teacher, can use them to make the job of teaching basic nutrition concepts a little easier.

The Community Nutrition Service's objectives for the McDonald's Nutrition Action Pack are the following:

- to develop the understanding that all living things need food for health, growth, and activity
- to develop a favorable attitude toward eating
- to recognize cultural and personal food differences
- to encourage the acceptance of new foods
- to recognize the appearances and tastes of different foods
- to develop an understanding that food contains varying amounts and types of nutrients
- to understand the relationship of foods and activity to obesity
- to understand the role of snacks to the diet

It is our hope that this McDonald's Nutrition Action Pack will make teaching nutrition education an enjoyable as well as an informative experience.

Sincerely,

Joanne Sockut, Director
Community Nutrition Service
Cleveland Health Museum &
Education Center

Lowell F. Bernard, Director
Cleveland Health Museum &
Education Center
Cleveland, Ohio

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The McDonald's Nutrition Action Pack was developed by Joanne Sockut, Director of the Community Nutrition Service, Cleveland Health Museum and Education Center, and Stephanie Stumpo, Nutrition Consultant. The director of design was C. Lee Burdine.

Other contributors were Patricia Schulman and Mary Ann Webber, Nutrition Consultants; Roberta Jones, Director of Health Education, Cleveland Health Museum and Education Center; and Estella Meyer, Secretary.

The activity masters in this book will produce a minimum of 200 copies. To make copies, carefully detach the master along its perforated edge. Then attach the master to the drum of your spirit duplicator and run the number of copies required.

The master can be stored for later use by removing it from the spirit duplicator and placing it back in its original place between the tissues of this book.

Unit I
Why you need food

All living things need food and water. Nutrition is the way the body uses food. We eat to keep healthy and well, to grow, and to receive energy for work and play.

This first unit discusses the relationship of food to health, growth, and energy. This relationship is developed through the concepts of body awareness, the cellular basis of life, and the universal need for food.

HEALTH AND NUTRITION

Children have many concepts about health. A suggested introduction to this unit is to ask the questions:

1. What is a healthy child? The teacher should stress that a healthy child:
   a. Grows properly
   b. Has healthy teeth with few cavities
   c. Loses little time from school because of illness
   d. Has lots of pep and energy
   e. Is alert and enjoys life
2. What do you think you need to be healthy? The teacher should stress food and activity. At this point, hand out Activity Master 1.

Using Activity Master 1: What are you made of?

The purpose of this activity master is to introduce the children to the relationship of food and health through the use of the concept of cells.

a. Have the children identify the body parts shown.
b. Have the children read the section about cells, then question them as to their concept of cells; i.e., Can you see your cells? What might you have to do to see them? Do you have cells in your hair, fingernails, skin, etc.
c. Have the children answer the questions.

Suggested Activities

1. Obtain a few biology books and pass them around the class so the children can see photographs of what cells look like under a microscope.
2. A teacher from a high school or someone from the health department might be willing to bring in a microscope so that the children can actually observe cells.

GROWTH AND NUTRITION

All living things grow in one of two ways: the cells get larger or more cells are made. Regardless of the way growth occurs, food is required.

The body of the infant is quite different in proportion as well as size from that of an adult.

Using Activity Master 2: How do you grow?

Activity Master 2 explores the changes in body size as a child grows.

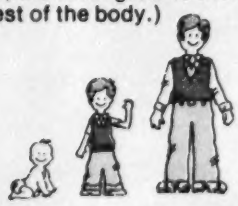
a. Have the children color the strips as directed on the copies made from the master.
b. Then they should cut along the solid lines.
c. Ask them to separate the strips according to color and to find the message.

d. Tape the strips of the same color together so the message reads from left to right.
   1. **Green:** I was only about this tall when I was born.
   2. **Red:** I am about this tall now. Food makes me grow.
   3. **Blue:** When I grow up, I will be about this tall. I will need food and lots of play to grow as tall as I should.

e. Students now have three long strips representing the average height of an infant, a nine year old, and an adult.

f. They can fix these tapes vertically to a wall at school or perhaps a door or doorframe at home. That way they can keep track of their growth, with an eye to where they were and an eye to where they are headed.

g. Discussion of growth.
Discuss with the class the fact that not everyone looks alike. Note that the children differ in height, weight, body build, color of hair and eyes, interest, and abilities.
Ask the children what they think controls their final size. (Answer is heredity [e.g., parents' height] and the food the children eat every day.) We cannot control our heredity, but we can control whether we grow as big as we were meant to be. The situation is similar to making a building with plastic blocks. If a child runs out of blocks to use, he or she would place the roof on the building even though the building is smaller than it should be. If the child eats a variety of foods and gets the proper amount of rest and exercise, the child will grow to his or her potential. Remember to stress the fact that not everyone will be the same size: some will be tall, others will be short, and some thin, and others not so thin. However, *enough food and the right kinds of food* make all the difference in achieving the growth potential.
Ask the children if they think their body parts all grow at the same time. (Answer is no. For instance, the teeth grow to their full size before the rest of the body.)



Suggested Activites

1. Make a "How I Have Changed" bulletin board with baby and current pictures of the children. Have the children note how they think their body has changed. Make a game out of matching pictures.
2. Have the children keep a growth record as illustrated below. A large piece of construction paper or wrapping paper for each child can be used for the record. A good way for the children to actually see the changes would be by recording in the fall, winter, and spring of the year.

	Fall	Winter	Spring
Hand			
Foot			
Height			
Weight			

Directions — Each child should trace his/her hand and foot and record height and weight measurements.

FOOD FOR ENERGY

The third section of WHY YOU NEED FOOD covers the body's use of food as an energy source. This section begins with a story introduction to the relationship of fuel to movement. The more abstract concept of energy should then be presented after the story as the main theme of the spirit master.

THE BODY ENGINE

Jeff and Cindy Jones's father took them to the baseball game last night and the trip there and back was so long that it made them very tired. Because they were so tired, they woke up late this morning and had to ride to school with their dad. When they were about half way to school, the car just stopped. . . (Questions: Why do you think the car stopped? How many of you have ever been in a car that just stopped running?)

Mr. Jones got out of the car and lifted up the hood. Inside was the engine.

Jeff said, "I think that big engine is what makes the car go."

Cindy said, "If it makes the car go, then why aren't we going?"

Jeff said, "I don't know. Dad, why won't it go?"

Mr. Jones explained that an engine is not enough. The engine must be fed before the car can go. (Question: What do you feed a car engine? Gasoline, Fuel.)

Mr. Jones also told Jeff and Cindy that there are many different kinds of engines, but that they can all burn their fuel to make heat and energy. Energy is what makes everything go!

Mr. Jones told Jeff and Cindy that people have engines too. Their engine is their body and it has to be fed. He asked Cindy if she knew what the body engine's fuel is.

She thought for a minute and answered, "Food."

Jeff said, "But Dad, how does the food make me move?"

Mr. Jones said, "It burns like the fuel in a car, only much slower and without flames. It may seem hard to believe, but food does burn in your body even though you can't see the flames. Feel your cheek. It's warm. The heat comes from inside your body, where the food you eat burns and makes heat."

Jeff thought again and said, "Can I eat just once and have enough fuel for always, Dad?"

Mr. Jones replied, "Well, Son, the problem with the car right now is that the fuel supply is gone because we used all the gas for the trip to the ball game last night. You see, a car can only hold enough fuel for a short time. Your body is the same way. If it doesn't get enough fuel, it will eventually stop running, so you must supply it with food fuel every day."

Jeff was happy because he now understood why he needed to eat every day.

Cindy looked at her watch and said, "Gosh, Dad, we're going to be late for school. Is there any way to get the car started?"

Jeff said, "Look Dad, there's a gas station right down the street."

And very soon the Jones car engine was filled with fuel.

Did you have *your* fuel for *your* body engine today?

Using Activity Master 3: What makes you go?

The purpose of Activity Master 3 is to further develop the concepts of fuel and energy.

a. Have the children read the activity master aloud.
b. Answer to: Do you know where a _____ gets its energy:

Fish	Cow	Lion
Fish food	Grass	Meat
Water plants (algae)	Plants	
Other fish		

This exercise is designed to show the children that food provides the energy for animals. Some animals eat only plants, while others eat only meat, and still others eat both. Ask the children what kinds of foods people eat. (Both plant and animal products.)

c. Have them draw pictures of foods that they like to eat. Explain that all foods give them energy.
d. Ask the children if they think they need energy to sleep. (Yes. All our inside parts are moving, even if our outside ones aren't.)

Suggested Activities

1. If the weather is cold, you can show that the body produces its own heat. Bring a fever thermometer to class and take your temperature both inside and outside the building. Show the children the results.

2. Encourage the children to try various ways of moving from one place to another, such as skipping, hopping, wiggling, jumping. Ask them if they need energy to do these things.

Unit II
Your daily food guide

The human body is a most complex organism. Its complexity is reflected in its nutritional needs. More than 50 nutrients are already known to be necessary to sustain life. You probably have heard people say "eat well" or "eat the right kind of food," but just what do these comments mean? To the nutrition professional the right kind of food means a diet which contains all the nutrients necessary for good health.

Unfortunately, with so many essential nutrients, it almost seems as if you should sit down with a calculator to tally your daily diet. Just think of all the foods that you eat every day. Then imagine taking out a book and looking up just ten or twelve nutrients for each food. Then you would still have to add all these food values together. In no time at all you might find yourself not caring about good nutrition, just to avoid all that research and addition. Nutrition professionals have devised a method using basic food groups to guide you to eat what you need with a minimum number of calories. The foods listed in the food groups, excluding fats and oils, cover about 80% of the nutrient needs with about 65% of the suggested calories.

FOOD ACCEPTANCE

In the primary grades, food acceptance and attitudes are every bit as important as learning what foods belong in the food groups. Good attitudes and acceptance provide a foundation upon which the proper food choices can be made. In addition, each child must feel individually involved and must feel that the food group choices presented relate to his own food habits. The following activities suggest ways to help prepare students to understand the food groups they will work with on Activity Master 4.

Activity 1

The purpose of this first exercise is to stress the individualization of food choices. As an added benefit, the exercise gives insight into the food habits of the students. Have each child draw a picture of one of his/her favorite meals. Make a display of the drawings. Have each child describe the favorite meal. Make the point that although the children may have greatly different favorite meals, no particular way of eating makes one person better than another.

Activity 2

One approach to effecting food acceptance, in addition to the actual tasting of new foods, is to talk about the process of learning to like new foods. One method of approach is to have the students each write or tell the story of "How I Learned to Like _____." A very effective way to introduce the "How I Learned to Like _____" activity is to have someone the children respect come into the classroom and tell how he or she learned to like a certain food.

Activity 3

Another concept children need to master before using food groups is the knowledge that the

same food can appear in many different forms. The point can be made in several ways. The most direct means is to have the children take part in the preparation of several quite different-looking forms of the same food (e.g., eggs). Using another approach, containers from various forms of the same food may be displayed. For instance, tomatoes which are canned, fresh, stewed, reduced to paste, or in the form of catsup, juice or spaghetti sauce might be displayed and even tasted.

INTRODUCTION TO THE DAILY FOOD GUIDE

The child in the primary grades is beginning to make more decisions concerning what he chooses to eat. For the first time, he might have a small allowance to spend and access to the neighborhood store. The introduction of the food groups at this early stage in the learning process promotes positive food habits for the future.

Using Activity Master 4: Food group chart

Activity Master 4 is designed to be a complete reference to the food guide, along with parts of Activity Masters 7 and 8. Students will save it so they can take it home with them.

a. The activity master may be colored by the students.

b. Discussion

1) Identify the foods pictured in each food group.
Dairy group: Glass of milk, milkshake, pudding, cheese (Swiss and Cheddar or American), ice-cream cone.
Meat and protein group: Chicken leg, fish, egg, hamburger, peanut butter, dried beans.
Fruit and vegetable group: Banana, tomato, carrot, apple, orange (citrus fruit), cabbage/lettuce.
Breads and cereals group: Breads, elbow macaroni, spaghetti, muffin, bun, bowl of cereal.
Ask the students to mention or describe other foods that they can think of which belong in each of the food groups.

2) Discuss how many times each food group should be eaten daily. Have the children suggest various ways that the foods may be eaten throughout the day, e.g., fruit as juice with breakfast, cheese as a snack.

3) Explain that the daily food guide is a desirable pattern, but there may be some days when the guide cannot be followed exactly.

Using Activity Master 5: Food squares

Activity Master 5 is designed to reinforce the association of foods with the appropriate food groups.

a. Here again the exercise may be colored by the students.

b. Follow the stated directions.

Using Activity Master 6: Four good lunches

Activity Master 6 is designed to aid the children in translating the daily food guide into real meals.

a. The extra spaces are designed for snack foods. Don't worry if children's balanced lunch choices have left them with unorthodox snack foods.

b. Have the children read aloud several lunch choices. Ask why they made the choices they did.

c. Then look at the left-over foods. Explain that these are snack foods. Note how they too belong in the food groups. Make the point that use of food groups is not confined to traditional mealtimes, but is applicable to snack times as well.

THE NUTRIENTS

Name of Nutrient	Types	Function
proteins		necessary for body growth and maintenance of body tissues
fats		provide a concentrated source of energy; carry fat-soluble vitamins
carbohydrates	starches, sugars, cellulose	provide energy for body and bulk in intestinal tract
vitamins	A, D, E, K, B_1 (thiamin), B_2 (riboflavin), niacin, B_6 (pyridoxine), pantothenic acid, biotin, folacin, B_{12}, C	many life maintaining and growth promoting functions in the body; some make it possible to release energy from carbohydrates, fats, and proteins; others cause necessary reactions to occur within body cells
minerals	* calcium, chloride, iron, magnesium, phosphorus, potassium, sodium, sulfur	many roles; some (like calcium) build tissue; some regulate balance of body fluids; others cause essential reactions to occur in the body
water		because so many things dissolve easily in water, it is a good carrier for nutrients and waste products; a major part of blood, perspiration, saliva, and other digestive juices; over half the weight of the human body is water

* These are minerals the body needs in comparatively large quantities. We have omitted minerals which — although essential — are needed in minute quantities.

Unit III
What food is made of: nutrients

Nutrients can be defined as the different substances found in foods that keep the body healthy, growing, and active. There are six basic nutrients needed by the body. They are protein, fats, carbohydrates, vitamins, minerals, and water. Each nutrient has specific functions in the body. Everyone needs all six nutrients to stay alive.

PROTEIN: THE BODY'S BUILDING MATERIAL

Protein is necessary for building new body tissue, maintaining the structure of the body, supplying substances that act as body regulators, producing compounds that are essential for normal body functions, and furnishing energy. However, the unique quality of protein is that, unlike carbohydrates and fats, it contains nitrogen, which is essential for all tissue building.

A suggested mode of presentation of protein to the students is the following:

What are you made of? (Cells). Do you think that these cells use the nutrients from the foods you eat? (Yes). One nutrient that every cell needs is protein. All cells contain protein. We use protein to grow, to repair our bodies (Burns, cuts, surgical operations), and to make muscles. Sometimes proteins give us energy to move. What other parts of the body besides muscles are made of protein? (All parts of the body). Why do you think children who are growing need more protein than someone who is not growing? (They are making new cells and all cells contain protein.)

Using Activity Master 7: High protein foods

The purpose of Activity Master 7 is to introduce the children to the foods and the food groups which are good sources of protein.

a. Have the children color the character and the foods inside him. Have them identify the foods. They are Swiss cheese, eggs, fish, beans, milk, chicken or turkey, steak or chops, peanuts, ground beef.
b. Now have the children answer questions 1-5. Then have them discuss which food groups they have discovered are high in protein. Note: refer the children to the food groups. Ask them why they think one of the groups is called the Meat and Protein Group rather than just the Meat Group. (There are other members in the group besides meat: eggs, beans, peanut butter.)
c. Children should cut out the theme character and save him for use with the Food Group Chart (Activity Master 4) and the Energy Foods (Activity Master 8).
d. Have the children suggest other foods that are high in protein, e.g., tuna fish, liver, veal, hot dogs, lamb chops, pork chops, bologna, etc.

Suggested Activity

What protein food am I?

Cut out pictures of different protein foods and paste them on sheets of colored paper. Pin one on the back of each child without him seeing the picture. Each child comes to the front of the class in turn. He ask the others questions about the food pictured on his back. The rest of the children answer only yes or no. (This activity can be done with any of the nutrients.)

FATS AND CARBOHYDRATES: THE ENERGY FOODS

The following is a suggested presentation for an introduction to fats and carbohydrates.

What nutrients can give us energy for work and play? Proteins can, but most of the energy for our bodies to work and play comes from fats and carbohydrates. All oily and greasy foods contain fat. We commonly eat fats in margarine and butter, salad dressings, mayonnaise, and bacon. Carbohydrates are found in foods like fruits, cereals, and breads. They are also found in sugar-filled foods.

What foods contain sugar? (Sugar is found in foods that taste sweet: the sugar in the sugar bowl, in jellies and jam, in honey, in soda pop, in cakes and pies, in presweetened cereals, and in candy.) We have to be careful not to eat too many sweet foods because they do not contain many nutrients other than carbohydrates. They also can spoil our appetites for the foods our body needs more. Did you notice that there are very few sweets in the foods groups? Fruits are sweet too, but they contain other nutrients that are needed by our bodies. So if you get hungry for something sweet, what do you think you should pick, a fruit or some candy? Fruits are the best kind of sweet foods for the body.

Using Activity Master 8: Energy foods

The purpose of Activity Master 8 is to introduce the children to the foods and food groups which are good sources of carbohydrates and fats.

a. Have the children color the character and then identify the foods in her body as well as those in her bag. The foods are:
   Carbohydrates: bowl of cereal, spaghetti, banana, corn, potatoes, apple, macaroni, flour, bread.
   Fats: salad dressing, bacon, butter or margarine.
b. Questions:
   1. What food groups are found in her body?

2. What kind of energy foods are found in her bag?

c. Have the children answer questions 1-3. Discuss which food groups contain the high energy foods.

d. Children should cut out the theme character and combine her with the Food Group Chart from Activity Master 4 and the theme character from Activity Master 7 on a piece of cardboard to make a poster. The elements are so designed that the characters can appear to be holding the Food Group Chart, as they appear on the cover of this book. Students can take the poster home and mount it in their rooms or, even better, put it in their kitchen so the entire family can see it.

Suggested Activities

1. Carbohydrates containing starches will respond to the addition of iodine by producing a deep blue color. All the foods shown in the theme character's body will respond, but sugars will not respond. Test for starch by adding a drop or two of tincture of iodine to the cut surfaces of several foods.
2. Foods which contain fats will leave a permanent spot after being rubbed on brown paper. Cut out several squares from a brown paper bag. Rub each food to be tested on a different square. If a wet-looking spot appears and does not dry after a few minutes, the food contains fat.

WATER

Thus far, the nutrients which have been discussed are all nutrients that the body needs in large quantities. There is one more — water. Because the children might not recognize the essential nutrient role of water, it is necessary to stress this concept.

The following is a suggested presentation for studying water:

Water is approximately 2/3 of the body weight. The body regularly loses some of its water in the form of liquids. Name some of these liquids. (Tears, perspiration, saliva, urine.) Every cell in the body needs water to maintain its shape. What happens to plants if they don't have water. Name another body liquid which contains water? (Hint: it is red.) The water in the blood transports all the nutrients to the body cells. Have the children name some foods that contain water. (Milk, other drinks, soups, sauces, watermelon, and other fruits and vegetables.)

Suggested Activities

1. Bring several raisins and some fresh grapes to class. Have the children examine the difference in these two forms of a grape. Then rehydrate half the raisins by bringing them to a boil in water to cover. Let stand for a few minutes. Drain the plumped raisins and compare to the fresh grapes. Note that the grape is a fruit that grows on a live plant. Once the water is removed, the shape, color and feel of the grape are forever changed. Taste the difference in the three forms of the grape. If grapes are out of season, the same experiment could be performed with fresh or canned plums and prunes.
2. Bring in some dried or freeze-dried foods for the children to examine. Note that these foods have most of their water removed.

VITAMINS AND MINERALS

Vitamins and minerals are two groups of essential nutrients that the body needs in very small quantities. These nutrients are no less important than the nutrients that the body needs in larger amounts. If any one of these is omitted from the diet for an extended period of time, life cannot continue. Food generally contains substantial amounts of the nutrients that are needed in large quantities and small amounts of the nutrients that are needed in small quantities.

Many children, as well as many adults, believe that everyone needs to take vitamin and mineral supplements. However, a healthy child consuming an adequate and varied diet from the daily food guide usually has *no* need for them. In any case, a supplement is no substitute for food, and should be taken only on the advice of a physician.

There are many different vitamins and minerals necessary for body functioning. Although they are all equally essential, Vitamins A and C, and the minerals calcium and iron are sometimes found lacking in the diets of children. In this unit children will receive a general introduction to vitamins. The teacher will receive additional directions on how to teach Vitamin A and Vitamin C to older or more advanced students. The mineral iron will receive primary emphasis with secondary emphasis on calcium.

Using Activity Masters 9 and 10:
Make a vitamin quiz card

The most important facts for young children to know about vitamins are that:

1. Vitamins are necessary for life, growth, and good health. Point out that "vita" is the Latin word for *life*.
2. Vitamins occur naturally in foods.
3. A person who eats a variety of foods from the different food groups will probably get all the vitamins he needs. People with special medical conditions may need to take vitamin supplements.

The Vitamin Quiz Card conveys the above concepts through activity. Encourage children to take their completed Vitamin Quiz Cards home to explain to parents and brothers and sisters. The

unspoken message will be that people should eat a variety of foods — such as those shown on the Quiz Card — to get the vitamins they need.

Vitamins A and C

With older or more advanced students you might want to undertake a specific study of Vitamins A and C. Begin with a story that will show how much the human body needs vitamins: Many, many years ago there were only sailing ships on the seas. The steam ship had not been invented and sailing ships had to depend on the power of the wind to move them. Voyages were long and often sailors did not touch land for months. They had to carry their food with them. Sailors sometimes suffered from a disease — scurvy — that caused bad gums, skin sores, aching muscles, brittle bones, and possibly death. This disease was caused by a lack of Vitamin C — a vitamin present in some fresh fruits and vegetables. A physician in the British navy discovered he could cure scurvy by giving affected sailors lime or lemon juice to drink. After his discovery, English ships on long voyages began to carry a supply of lemons and limes. Because their ships carried supplies of citrus, English sailors became known as "limeys," and the dock area of London where these supplies were stored became known as "Limehouse."

Some student volunteers might be willing to research Vitamin A and Vitamin C. If possible, get some health books or a simple encyclopedia for students to use in the classroom. Ask them to try to find out what each of these vitamins does for the body and to mention some of the best sources. They might be able to draw and color pictures of these sources and to mount them as a bulletin board display.

VITAMIN C

Function. Helps to form a substance, collagen, which holds body tissue together and helps cuts and wounds to heal. It also strengthens the walls of blood vessels. Vitamin C helps the body use calcium to make bones and teeth. It might be of some help in preventing infection.

Sources. Broccoli, spinach, greens, oranges, grapefruit, strawberries, melon, cabbage, potatoes, tomatoes.

VITAMIN A

Function. Helps to keep the skin healthy. Unbroken skin is the body's wall of protection against germs. It helps the eyes. People who don't get enough Vitamin A suffer from night blindness. This vitamin also helps the bones to grow as much as they should.

Sources. Liver is the best source of Vitamin A. Yellow, orange or dark green fruits and vegetables also provide this vitamin: sweet potato, carrot, spinach, greens, squash, pumpkin, melon, apricot, broccoli, and peaches.

INTRODUCTION TO IRON

The adult body contains approximately one-seventh of an ounce (3-5 grams) of iron. Even though this quantity is extremely small, it affects the proper functioning of every cell in the body. Iron is an essential part of hemoglobin, the oxygen-carrying substance of the blood. Without iron, hemoglobin cannot take up and release oxygen. Oxygen is necessary for the cells to free energy from foods. If a child does not have sufficient iron, he or she will lack energy and appear tired and listless.

The following is a suggested introduction to iron. Mention three facts to the students: iron combines with the protein you eat to make healthy blood. Iron-rich blood is a deep red color, while blood lacking iron is a much paler color. When your blood is a deep red color, you have plenty of energy to run and play. But when your blood is pale in color, your body lacks energy and you feel tired.

Using Activity Master 11: Iron

Activity Master 11 illustrates the role of iron and the best sources of iron.

a. Have the children read the top section aloud. Then have them read the center section about foods. Slowly, let them read the names of the foods pictured. Then let them choose a food that they like from the choices. Have them write it in the appropriate space. Then read the rest of the story aloud.
b. Make a note of the presence of greens such as spinach. Ask what vitamin they saw greens associated with. Also stress the presence of beans. Ask them how many eat beans and the kinds of beans they like. Note that liver has much iron as well as much Vitamin A.

Calcium

The following is a suggested format for studying calcium. Perhaps you have heard of a very important mineral for growing children. Do you know what it is? (Hint: It is found in milk.) Calcium is the bone-building mineral. Calcium forms the structure of your bones and helps to keep them straight and strong. We have already studied a food group which contains many foods high in calcium. Do you know which group it is? (The milk group.) What kinds of foods from the milk group can you think of?

Unit iV
Eating Too Much

Experts estimate that about 25 million people in the United States are overweight. Because of the diseases that attend obesity, it has become a major health problem.

Many factors in our society contribute to obesity: a larger and more available food supply, less physical activity, more leisure time, and a trend toward more snacking.

Obesity is recognized as a health problem because of its association with heart disease, high blood pressure, hardening of the arteries, arthritis, diabetes and numerous other diseases.

Most authorities on human behavior agree that if children are introduced to the subject of obesity early in life, many cases of adult obesity can be prevented. The problem of the obese child has its origins in the belief that "a fat baby is a healthy baby." However, current research indicates that the fat infant has a more substantial chance of becoming a fat adult than does the moderate to thin infant.

Using Activity Master 12: These three children

The purpose of Activity Master 12 is to point out the relationship of food intake and activity to weight gain.

a. Have the children read the activity master and answer the questions.
b. Discussion questions:
   1) What foods did Jerry eat that he should not have eaten? Stress the concept of food quantity as a source of Jerry's potential problem. Explain that if Jerry ate this way only once, he would probably stay as slim as he looks in the picture. But if he ate this way every day, he would soon gain excess weight.
   2. Explain that Jerry ate too much of all kinds of foods. In this country, some people gain excess weight because they also eat too many snacks of low nutritional value. Explain that these snack foods are high in sugar or fat and low in other nutrients. They may fill the children up and satisfy their hunger, but they do not contain sufficient nutrients to maintain health. Emphasize the fact that it is important to eat 4 servings from the fruit and vegetable group, 4 servings from the bread and cereal group, 3 servings from the dairy group, 2 servings from the meat and protein group, and a little fat each day before eating the extras. If possible, even the snack foods should be chosen from the food guide.

Suggested Activities

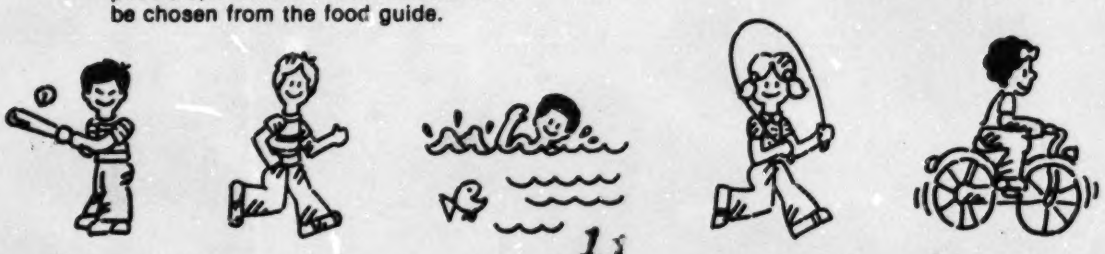
1. Have the children assemble a lunch that could be too large, using food pictures which they have cut from magazines. Have them paste the foods on a paper plate. Ask if the lunches contain a food from each of the groups in the daily food guide. Ask them if their lunch choices contain any foods of low nutritional value. Ask them what foods they can remove or cut down on to make their lunches more appropriate in size. Reiterate that eating an excessively large meal just once is not the source of the problem, but eating too much too often is what causes weight gain.
2. Have the children perform different activities, e.g., walking and running, skipping and watching TV, jumping rope and crawling. Ask the children who they think was the most active? Who do they think used the most energy? How can they tell when they have been very active?

Using Activity Master 13: Go with food power

The activity on this activity master brings the entire program to a conclusion, emphasizing that if children are to work hard and play hard, they need to practice good nutrition. In addition, it reinforces what they already saw on Activity Master 12: that people need activity, especially if they are to avoid problems of obesity.

To begin the activity, you might bring a snapshot of yourself to the classroom. Draw a picture of yourself, incorporating the head from the snapshot, engaging in some sport or other physical activity. Mount and back the picture while the students watch. That way, they will see exactly what they need to do. As they finish their own drawings perhaps you or some other adult would make the holes in the pictures so they can be suspended. If you would rather not carry out this activity in the classroom, you can assign students to work it out at home, perhaps with the help of parents.

After the children complete the activity, they should link their drawings, perhaps in groups of five or six, and hang them somewhere in the classroom, as shown on the activity master copy. In doing so, they will be extending the impact of the entire nutrition program. When they see their drawings in the days and weeks ahead, they will remember the principles of good nutrition they have discovered.



What am I made of?

My body is made of many parts. The arrows point to some of the parts. Write their names on the lines.

1 _____

2 _____

3 _____

These are made of smaller parts that you can't see called cells.

Your body is made of millions of cells.

What do you think your cells eat?_____

When your cells eat, they can do their jobs in your body. Some cells can...

Protect your body from germs.

Others fix cuts and breaks.

Still others can help you think.

When your cells are not fed, how do you think you feel? Put an X in the box that tells your answer.

☐	☐	☐	☐	☐	☐
Peppy	**Tired**	**Strong**	**Weak**	**Healthy**	**Sick**

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Color the strips. Cut them out. Put the ones that are the same color together. Can you make a message? Tape the strips that are the same color together.

Color up to this line and cut at the line if you are a girl. Use the whole strip if you are a boy.	BLUE
WHEN I GROW	BLUE
ME GROW.	RED
ABOUT THIS TALL.	BLUE
THIS TALL	RED
TALL WHEN I WAS BORN.	GREEN
AND LOTS OF	BLUE
UP, I WILL BE	BLUE
NOW.	RED
TALL AS I SHOULD.	BLUE
I WAS ONLY ABOUT THIS	GREEN
I AM ABOUT	RED
PLAY TO GROW AS	BLUE
FOOD MAKES	RED
I WILL NEED FOOD	BLUE

Macmillan/McGraw-Hill

What makes you go?
ENERGY makes you go.

It comes from gasoline that makes a car go.

It comes from wood that makes a fire go.

It comes from food that makes your body go.

Food makes the energy for you to wiggle and jiggle

to bounce and pounce

to walk and talk

All things that live need energy.

Do you know where
a fish gets its energy?

a cow?

a lion?

All healthful foods give you energy. Draw some here.

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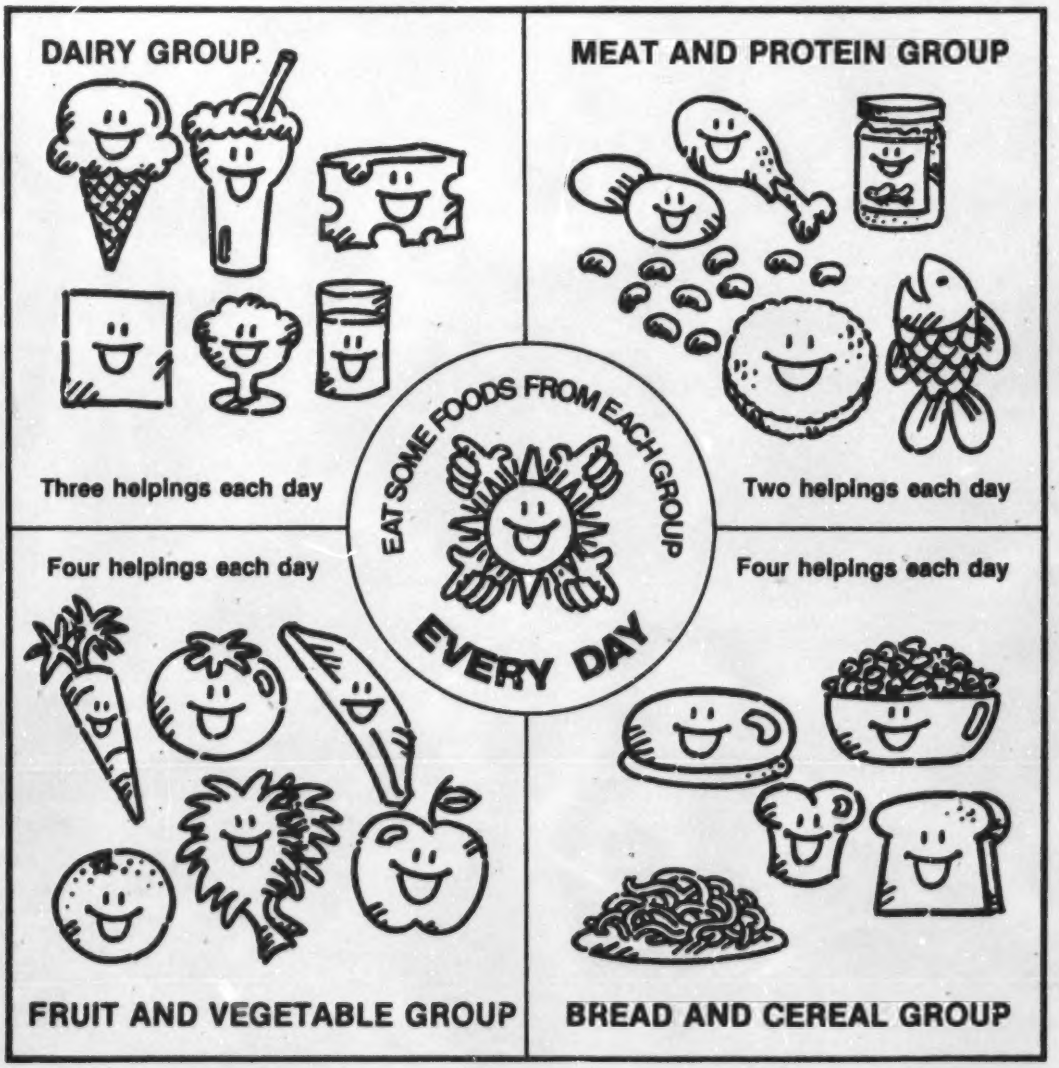
Each day we need to eat different kinds of food.

FOOD GROUP CHART



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These are food squares.

1 Cut out the squares.

2 Place each square in its food group on the food group chart.

Hamburger	Swiss cheese	Muffin	Bread
American cheese	Milk	Nuts	Pudding
Banana	Chicken	Orange	Bun
Fish	Spaghetti	Peanut butter	Ice cream
Carrot	Tomato	Milkshake	Popcorn

I'm hungry!

Help fix my lunch.

1 Use the squares to make 4 good lunches.

2 What kinds of foods do you have left? Place them here.

	MEAT AND PROTEIN GROUP	BREAD AND CEREAL GROUP	DAIRY GROUP	FRUIT AND VEGETABLE GROUP
LUNCH 1				
LUNCH 2				
LUNCH 3				
LUNCH 4				

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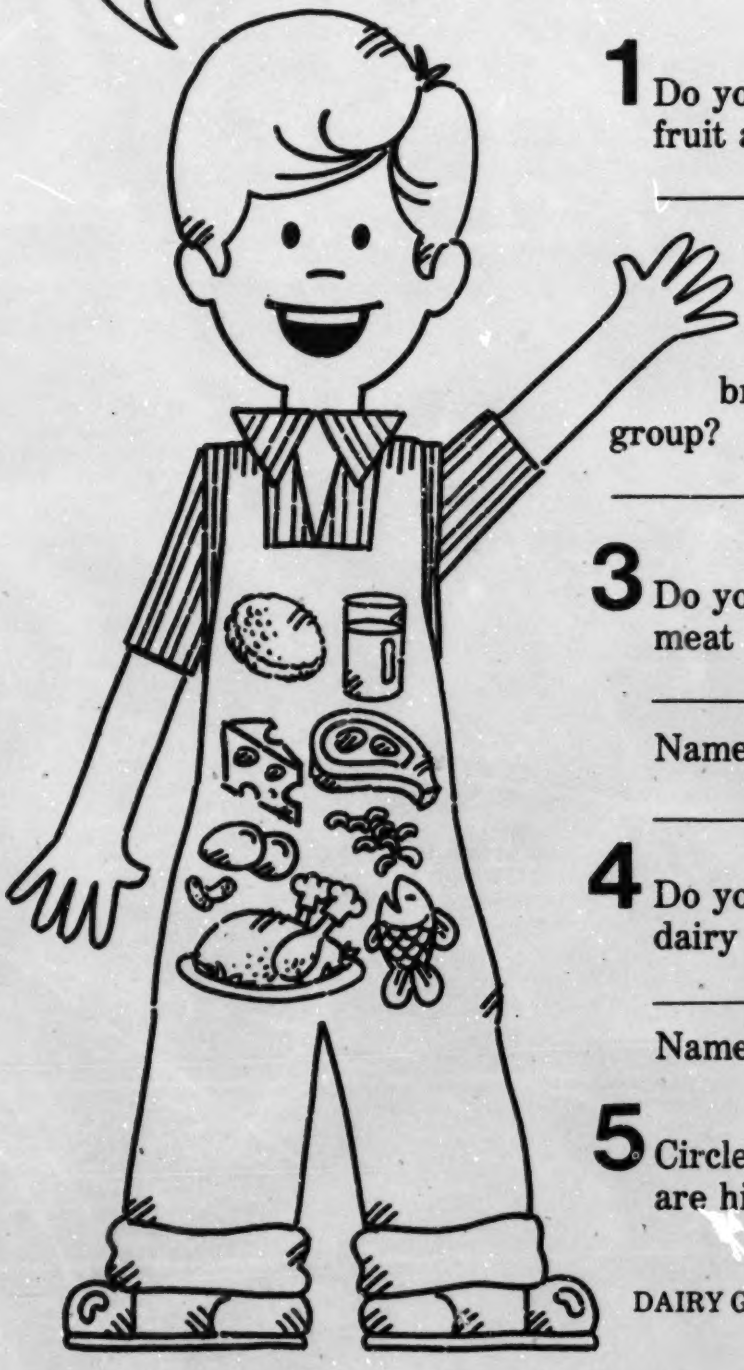
I'm full of high protein foods.



1 Do you see foods from the fruit and vegetable group?

_____

2 Do you see foods from the bread and cereal group?

_____

3 Do you see foods from the meat and protein group?

_____

Name them._____

_____

4 Do you see foods from the dairy group?

_____

Name them._____

5 Circle the food groups that are high in protein.

DAIRY GROUP

FRUIT AND VEGETABLE GROUP

BREAD AND CEREAL GROUP

MEAT AND PROTEIN GROUP

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I'm full of energy foods.

1 You need energy to _____.

2 My stomach shows energy foods called carbohydrates. Write their names.

_____ _____

_____ _____

_____ _____

_____ _____

_____

3 Circle the food groups you see in my stomach.

FRUIT AND VEGETABLE GROUP	DAIRY GROUP
MEAT AND PROTEIN GROUP	BREAD AND CEREAL GROUP

4 My bag is filled with another energy group called fats. Write their names.

_____

_____

_____

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Make a vitamin quiz card

Use this page and the next one to make a vitamin quiz card. When you finish you will have something to take home to show to your parents and friends.

This is what to do:

1. Cut out the questions and answers on this page. Can you tell the answer to each question?
2. Cut out the quiz card from the next page. Fold it and paste the two halves together.
3. Paste the questions and answers in the right spaces on each side of the quiz card.
4. The person you quiz will see only the questions. You will be able to turn the card over to show the answers.
5. Color the foods you see. They are some of the foods that give you vitamins.

To live, to grow, and to stay well in every way.

A, B, C, D, E and K.

Can you name some vitamins?

Eat foods from the four food groups every day.

How can you get your vitamins?

Why does everybody need vitamins?

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Vitamin Quiz Card

Solved, colored, and put together by

(name)

QUESTIONS

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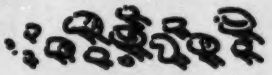
ANSWERS



Activity Master 10

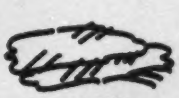
IRON is one of the many minerals people need.

Yesterday my body said:
It's time to grow. I need more cells.

My cells said: It's time to make more of us.
We need more blood to feed us.

My blood said:
It's time to feed the cells.
I need more iron to make me red.

To get more iron into my blood, I should eat a food that has lots of iron:


LIVER

GREENS

PORK AND BEANS

BEEF

PORK

PRUNES AND RAISINS

And guess what?

AT DINNER I ATE:

_____

Choose one of the iron-full foods you like to eat.
Write its name on the line.

There was enough iron to make my blood red.
There was enough blood to feed the cells.
And there were enough new cells to make my body grow.

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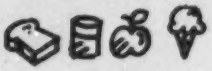
These three children ate lunch an hour ago.

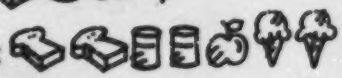
John

Jan

Jerry

This is what John ate for lunch: 

This is what Jan ate for lunch:

This is what Jerry ate for lunch: 

Fill in the blanks:

John ate____sandwiches. Jerry ate____sandwiches. Jan ate____ice cream cones. Jerry ate____ ice cream cones. _____could be eating too much.

These children like to have fun!

John likes to:

Jan likes to:

Jerry likes to:

Answer the questions:

Who likes to run races? _____

Who likes to sit? _____

Who likes to play baseball? _____

Who likes to ride bikes? _____

Who likes to swim? _____

Who plays a lot? _____

Who doesn't play very much? _____

Fill in the blanks:

_____could get to weigh too much from _____too much and not_____enough.

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Go with FOOD POWER!

Lots of play helps to keep people from weighing too much. The right foods give people the energy to play well.

Draw a picture of yourself at play. If you have an old photograph of yourself, ask someone to help you cut the head off so you can paste it to your drawing.

Color the picture. Cut on the dotted line. Ask someone to help you paste the picture to some light cardboard. Paste some fancy colored paper to the back of the cardboard.

Your teacher will help you poke some holes in the picture for hanging. Hang your picture with some others from the ceiling. You will see you and your classmates at play.

Goes with FOOD POWER Print your name here

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Goes with FOOD POWER Print your name here

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Teacher's references — Texts

Deutsch, R.M., *The Family Guide to Better Food and Better Health.* Meredith Corporation, Des Moines, Iowa, 1971. $7.95 hard cover, $1.95 paperback. This comprehensive book on nutrition for the layman presents a positive approach to good health. The author answers many of the most commonly asked questions about nutrition.

Stare, Frederick J., and McWilliams, Margaret, *Living Nutrition.* John Wiley & Sons, Inc., New York, 1973. At the same time it provides an excellent explanation of the physiological aspects of nutrition, this book also delves into the social, cultural, political, and environmental influences on dietary patterns.

Teacher's reference—Curriculum guides

Focus on Nutrition — Grades K-6

A teacher's handbook for nutrition education. Massachusetts Department of Education, 1970. This is an excellent source book for the teaching of nutrition. Good background material is provided in brief but accurate form. It includes a curriculum guide for materials and an annotated bibliography of other references and visual materials.

Health — Grades K-3

Strand 1 — Physical Health — Nutrition, University of State of New York and State Education Department, Bureau of Elementary Curriculum Development, Albany, New York 12224, 1969. This curriculum is directed toward the development of positive attitudes about food and toward creating an acceptance of a wide variety of foods. Cultural differences in food habits and the relationship of food to health and growth are also presented.

Boyd, Fannie Lee, *A Guide for Teaching Nutrition.* Vocational Education Division, Georgia Department of Education & College of Education, University of Georgia, Athens, Georgia 30602, 1969. Suggestions for nutrition curriculum are given for grades 1 & 2, 3 & 4, 5 & 6. Excellent activities and games are included. The use of the school cafeteria as a learning situation is suggested. Contains an evaluation form for checking students' accomplishments. The guide also contains an annotated bibliography of teaching aids.

Teaching aids

The Big Dinner Table.

11 Minutes — Color Film. National or local Dairy Council. Family mealtime around the world with a great variety of food from the four basic food groups.

Big Ideas Program.

Prepared by the National Dairy Council. Can be requested from the local Dairy Council. A workshop for Grades K-3 that equips the teacher with specific practical knowledge, methods, and aids for teaching nutrition in the classroom. The material is based on behavioral objectives.

Creative Food Experiences for Children.

Prepared by Mary T. Goodwin & Gerry Pollen. Center for Science in the Public Interest, 1779 Church Street, Washington, D.C. 20036. $4.00. This is an excellent resource book for teaching children about nutrition. It contains numerous activities, games, facts and recipes to make nutrition and foods a lively, exciting project. It also contains an excellent listing of other sources for pamphlets, films, etc.

Food Mobile.

Prepared by The American Institute of Baking. $.75. Paper food models are used to form mobiles to illustrate the concept of a balanced diet.

Materials for Teaching Nutrition in the Elementary Schools.

The Community Nutrition Service, Cleveland Health Museum & Education Center, 8911 Euclid Avenue, Cleveland, Ohio 44106. $8.95. An extensive kit including resource units and worksheets for teaching nutrition has been gathered together. Portions of the list may be purchased separately.

Teach Nutrition With Bulletin Boards

Nutrition-Education Service Center. Montclair State College, Montclair, New Jersey 07043. $2.00. This booklet contains many examples of how bulletin boards can be used to illustrate the Basic Concepts for Nutrition Education, developed by the Interagency Committee on Nutrition.

Teach Nutrition with Games.

Prepared by Nutrition-Education Service Center, Montclair State College, Upper Montclair, New Jersey 07043. $2.00. This guide suggests nutrition games for use with both elementary and secondary students. Most of the games at the primary level require active, physical participation.

General sources for teaching aids

American Bakers Association
1700 Pennsylvania Ave., N.W.
Washington, D.C. 20006

American Institute of Baking
400 East Ontario Street
Chicago, Illinois 60611

American School Food Service Association
4101 East Iliff Avenue
Denver, Colorado 80222

National Dairy Council
111 North Canal Street
Chicago, Illinois 60606
(Materials also available from your local dairy council.)

Society for Nutrition Education
National Nutrition Education Clearinghouse
P.O. Box 931
Berkeley, California 94701

Superintendent of Documents
Government Printing Office
Washington, D.C. 20402

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